

REMARKS

In the Office Action dated December 5, 2003 claims 1-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Frederick (US Patent No. 5,768,126) in view of Laroche (US Patent No. 6,049,766) in further view of Bhadkamkar et al. (US Patent No. 5,893,062) and Shepard (US Patent No. 5,943,347). Upon careful review of the cited references, Applicant respectfully traversed such rejection.

Claims 1, 3, 7, 11, 15-16, and 19-20 have been amended, and claim 10 has been canceled without prejudice. Claims 1-9 and 11-20 remain pending.

Claim Rejections Under 35 U.S.C. §103

Applicant's independent claim 1, recites (in part) a method comprising:

receiving, within a first stream via a network communication link, first audio data generated by sampling of a common audio signal of an audio signal at a first sampling rate;

receiving, based at least in part upon a change in a bandwidth capability of the communication link, second audio data within a second stream generated by sampling of said audio source at a second sampling rate different than said first sampling rate, the first and second audio data corresponding to a common audio signal;

Thus, as recited in claim 1, a first stream of audio data sampled from an audio source at a first sampling rate may be received e.g. by a receiving device via a network communication link e.g. from a server. In response to a change in bandwidth capability of the communication link, the device may receive a second stream of audio data sampled from the same audio source as the first stream, but at a second sampling rate that is different from the first sampling rate. A change in bandwidth capability or available bandwidth may be effected by (including but not limited to) the bit error rate,

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line capacity, noise, line capacity and line traffic. Once received, a cross fading may be performed between pairs of samples of the first and second audio streams.

Applicant submits that Frederick teaches a kernel-based audio mixer for mixing multiple digital audio streams. In particular, the first and second audio streams are mixed to provide a mixed audio stream made up of a series of digital audio samples representing a superposition of the first and second audio signals (see e.g. Abstract). More specifically, Frederick states that "[e]ach mixer can combine two or more digital audio input signals into a single digital audio output signal, which can be routed to one or more destinations. The input signals each represent a sound wave, and the output signal represents a sound wave that is a superposition of the sound waves represented by the input signals. Typically, the superposition is achieved through a linear combination of the component sound waves with limiting, such as clipping, when the resultant mixed wave exceeds a predetermined maximum amplitude threshold." (See e.g., col. 5, lines 55-67 emphasis added). Furthermore, Frederick discloses a mixer '200' that "receives digital audio input signals whose amplitudes are added by adder 230 to produce a single mixed output signal..." (See e.g. Col. 6, lines 27-37 and Fig. 2; emphasis added). Thus, Frederick mixes two audio inputs streams via an additive function whereby the signals are superimposed such their respective amplitudes are added together to form a resulting mixed audio signal.

In the above-referenced Office Action, Frederick was cited as teaching an audio mixer for mixing multiple audio data streams. In particular, Frederick was cited as teaching "receiving a first audio data stream" and "receiving a second audio data stream" and "mixing samples of the two data streams. Applicant respectfully submits

that Frederick is non-analogous art with respect to Applicant's pending claims and therefore should not be relied upon. In particular, Applicant's claim 1 does not mix data streams as required by Frederick but rather provides an output signal that is a result of cross-fading between two separate input signals from a common source. Such cross-fading is not an additive function but rather a substitutive function where one stream replaces the other after a transition (or cross-fading) period. During the cross-fading period samples from one stream are gradually increased as samples from the other stream are correspondingly decreased.

The above-referenced Office Action stated that "Frederick does not teach cross-fading as a mixing implementation" and cites Laroche as teaching "modifying time or pitch scale of an audio signal via a cross-fading method." The Office Action states that "it would have been obvious...to modify the audio mixer of Frederick to implement a weighted cross-fading algorithm or mechanism as taught by Laroche, for the purpose of reducing artifacts during the mixing of data streams..."

Laroche teaches an enhancement to the splice method of time scaling. In the splice method, segments of a single original signal are repeated or discarded to force the signal to conform to the desired time scale. Cross-fading is then used to conceal the effects of such repeating or discarding. (See e.g., col. 2, lines 6-10; col. 3, lines 50-56; emphasis added). Applicant respectfully submits that there is no teaching or motivation whatsoever to combine the teachings of Frederick with those of Laroche to achieve the Applicant's recited claims. In particular, Frederick does not teach or otherwise suggest any form of cross-fading let alone time scaling and/or pitch shifting by repeating or discarding segments of a single signal. Rather, Frederick

superimposes a first and second signal together to form a mixed output stream.

Similarly, Laroche does not teach or otherwise suggest superimposing two signals together nor how the disclosed method of cross-fading would, or even if it could, work with the superimposed streams of Frederick.

The above-referenced Office Action stated that Frederick and Laroche do not specifically teach cross-fading data based in part upon a change in bandwidth capability of a the communication link. the Office Action further states that cross-fading audio data based upon changes in the network status and cross-fading data that correspond to a particular playback time as taught by Shepard was well known. Applicant respectfully disagrees with this statement.

Shepard teaches a method of concealing errors during transmission of audio data packets. In the method of Shepard, a fundamental pitch period of a data packet is determined and a value indicating such period is added as a preamble to the data packet before its transmission. When a data packet is received, it is checked for dropped or corrupted data. If there are any errors, the fundamental pitch period is replicated with the data from the previous frame the requisite number of times and substituted in replacement thereof. (See e.g., Abstract). Thus Shepard, similar to Laroche, synthesizes/replicates data from a single audio stream a requisite number of times to compensate for lost or damaged data packets.

Applicant respectfully submits that there is no teaching or motivation whatsoever to combine the teachings of Frederick with those of Shepard to achieve the Applicant's recited claims. In particular, Shepard does not teach or otherwise suggest how

Shepard's disclosed method of concealing errors which is based upon a single audio stream could be applied to the two superimposed streams of Frederick.

Furthermore, even if one or more of Shepard, Laroche or even Bhadkamkar could be permissibly combined with Frederick (an assertion with which Applicant specifically disagrees), the combined teachings would nonetheless not teach each and every element of applicant's recited claims. In particular, neither Frederick, Shepard, Laroche or Bhadkamkar teach or otherwise suggest receiving a second data stream based at least in part upon a change in bandwidth capability of the network communication link through which the streams were received. Although Shepard does mention that packets of stream are received over a network, Shepard does not teach or otherwise suggest receiving or switching to a second stream based upon network conditions and then cross-fading to the second stream. Rather, Shepard merely teaches compensating for delayed packets within a single stream.

Summary

For at least the reasons set forth above, Applicant submits that claim 1 is patentable over Frederick, Shepard, Laroche or Bhadkamkar, alone or in combination. Additionally, claims 3, 7, 11 and 15 recite similar elements as those recited in claim 1 and for at least the reasons set forth above, are further be patentable over Frederick, Shepard, Laroche or Bhadkamkar, alone or in combination. Furthermore, due at least in part to their dependence upon allowable claims 3, 7, 11 and 15, Applicant submits that claims 2, 4-6, 8-9, 12-14 and 16-20 are similarly allowable.

Applicant submits that the rejections of Claims 1-20 are predicated on combining prior art references that contain no teaching or suggestion of how the cited references could be combined in any manner, much less the manner recited in the rejected claims. Simply put, the cited and applied references, taken alone or in combination, do not teach or suggest the subject matter of Claims 1-20. The Office Action fails to point out any teaching or suggestion in the references related to the desirability of the combination suggested in the Office Action. Furthermore, Applicant kindly reminds Examiner that it is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.

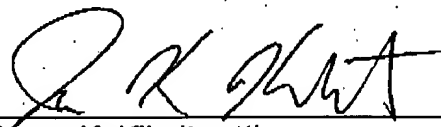
Applicant submits that any amendments made to the claims herein do not narrow the scope of the claims. Rather, these amendments have only been made to increase claim readability, to improve grammar, and to reduce the time and effort required of those in the art to clearly understand the scope of the claim language. In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejection is requested.

Respectfully submitted,

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Dated: 4/2/04

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